BACKGROUND:
Prognosis in Multiple Sclerosis (MS) remains largely unpredictable. Biological mechanisms driving disease evolution are probably different from those behind acute attacks. Age has often been indicated as a possible factor influencing the accumulation of severe disability.

METHODS:
The effect of age at disease onset, age at onset of progression and current age on disease course of 1023 untreated patients from the London Ontario (LO) database was assessed. Kaplan Meier analysis estimated the times from disease onset and from birth (patient age) to onset of progression and to disability milestones (DSS 3-6-8-10). Groups were compared using the Log Rank test. Logistic regression investigated the relationship between age and probability of reaching the endpoints.

RESULTS:
The relationship between age at disease onset, age at onset of progression and current age and long term evolution in Multiple Sclerosis

OBJECTIVE:
To investigate the relationship between age and disease evolution before and after the onset of the progressive phase.

At the end of the observation period most of patients (52.2%) had converted to secondary progressive (SP) MS: 21.2 % had a primary progressive course (PP MS). A greater male preponderance, an older age at disease onset and significantly shorter times to disability levels from onset differentiated the PP subtype (Table 1).

The two groups matched closely when survival was compared from DSS 3. Times for progressing from DSS 3 to DSS 6 and to DSS 8 were still significantly longer in the RR/SP group, but the differences observed were less than 3 mean years. In addition, progression index during the progressive phase, indicating the rate of disability accumulation after onset of progression, did not significantly differ (p=0.12) between PP and SP MS (Table 1).

CONCLUSIONS:
Age affects disease evolution largely by increasing the probability of experiencing a progressive course. Age related mechanisms play a primary role in the onset of the progressive phase which is confirmed to be a key determinant of long term prognosis. Disability accumulation during PP and SP phases appears homogeneous and not influenced by age at onset of RR phase, by age at onset of progression or by current age. These results have relevant implications in the design of clinical trials.

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